

REMARKS

The Office Action mailed April 9, 2002 has been reviewed and carefully considered. Claim 1 has been amended. Claims 1-7 and 9-10 are pending in this application, with claim 1 being the only independent claim. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

In the Office Action mailed April 9, 2002, claims 1-7 and 9-10 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claim 1 has been amended to clarify that the damping valve is arranged in the piston. In view of the amendments and remarks, it is respectfully submitted that independent claim 1 is now definite and the rejection of claim 1 as indefinite should now be withdrawn. Dependent claims 2-7 and 9-10 were rejected as dependent on independent claim 1 and therefore the rejection of claims 2-7 and 9-10 should now be withdrawn.

Claims 1-6, 9 and 10 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,971,180 (Kobayashi).

Claims 7 stand rejected under 35 U.S.C. §103 as unpatentable over Kobayashi.

Before discussing the cited prior art and the Examiner's rejections of the claims in view of that art, a brief summary of the present invention is appropriate. The present invention relates to a vibration damper having a variable damping force. The vibration damper includes a cylinder filled with a damping medium and a piston fastened to a piston rod is arranged in the cylinder for axial movement in the cylinder. The piston divides the cylinder into upper and lower working spaces. Non-return valves 1 and 2 are arranged in the piston, wherein non-return valve 1 allows flow therethrough providing a damping force in the compression stage and non-return valve 2 allows flow therethrough providing a damping force in the rebound or extension stage. A damping valve 3 is arranged in the piston which includes a valve body and a valve seat defining a flow path therebetween. The flow path is arranged in series with both of the non-return valves 1, 2

and is active in both the compression and rebound stages. The damping valve has a variable damping effect which produces a variable damping force that offsets the damping force of the non-return valves 1, 2.

Furthermore, the path provided by the non-return valves and the damping valve is the sole passage between the two working spaces such that damping fluid is required to flow through the damping valve when damping fluid is exchanged between the two working spaces.

Independent claim 1 has been amended and now recites "a damping valve arranged in said piston and comprising a valve body and a valve seat defining a flow path therebetween, said damping valve having a variable damping action and arranged in series with each of said first and second non-return valves, thereby acting in both said rebound and compression directions of the vibration damper so that the variable damping action offsets the damping force provided by each of said first and second non-return valves, wherein said damping valve in series with said first and second non-return valves comprise a sole passage for said damping medium between said two working spaces such that said damping fluid is required to flow through said flow path of said damping valve when damping fluid is exchanged between said two working spaces in the rebound and the compression directions of the vibration damper".

It is respectfully submitted that independent claim 1 is allowable over Kobayashi because Kobayashi fails to disclose, teach, or suggest (1) a damping valve having a variable damping which produces a variable damping force that offsets the damping force of the non-return valves in the piston and (2) the claimed damping valve arrangement in which the damping valve and the non-return valves in the piston provide the sole passage for damping fluid between the two working chambers of the cylinder. In contrast to the claimed invention, Kobayashi discloses a vibration damper in which a solenoid valve is arranged in series with non-return valves 42, 36 but does not produce a damping force that offsets the damping force of these valves. Rather, Kobayashi


discloses that a spool 94 of the solenoid opens or closes the path to the valves 42, 36. As stated in col. 5, lines 28-34 of Kobayashi, the spool 94 and the path 96 opened by the spool 94 do not produce a damping force that offsets the damping force of the non-return valves 36, 42 in the piston. Accordingly, the spool 94 and path 96 disclosed by Kobayashi fail to teach or suggest a "damping valve having a variable damping action and arranged in series with each of said first and second non-return valves, thereby acting in both said rebound and compression directions of the vibration damper so that the variable damping action offsets the damping force provided by each of said first and second non-return valves."

Furthermore, Kobayashi discloses a passage 50 which affords a communication path between the first and second working chambers without passing through the piston. This passage allows fluid to be exchanged between the two spaces even if the passage 96 is blocked. This teaches away from the limitation "wherein said damping valve in series with said first and second non-return valves comprise a sole passage for said damping medium between said two working spaces such that said damping fluid is required to flow through said flow path of said damping valve when damping fluid is exchanged between said two working spaces in the rebound and the compression directions of the vibration damper".

In view of the above amendments and remarks, it is respectfully submitted that independent claim 1 is allowable over Kobayashi. Dependent claims 2-7, 9, and 10, being dependent on independent claim 1, are allowable for at least the same reasons as independent claim 1.

The application is now deemed to be in condition for allowance and notice to that effect is solicited.

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AMENDMENTS TO THE SPECIFICATION AND CLAIMS SHOWING CHANGES

In the Claims:

1. (Amended) A vibration damper with variable damping force, comprising:
 - a working cylinder filled with damping medium;
 - a piston fastened to a piston rod arranged in an axially movable manner in said working cylinder and dividing the working cylinder into two working spaces;
 - first and second non-return valves arranged in said piston for respectively providing a damping force for the rebound and compression directions of the vibration damper;
 - and
 - a damping valve arranged in said piston and comprising a valve body and a valve seat defining a flow path therebetween, said damping valve [being arranged in one of said piston and said piston rod] having a variable damping action and arranged in series with each of said first and second non-return valves, thereby acting in both said rebound and compression directions of the vibration damper so that the variable damping action offsets the damping force provided by each of said first and second non-return valves, wherein said damping valve in series with said first and second non-return valves comprise a sole passage for said damping medium [through said piston] between said two working spaces such that said damping fluid is required to flow through said flow path of said damping valve when damping fluid is exchanged between said two working spaces in the rebound and the compression directions of the vibration damper.